Inverter Welder

OWNER'S MANUAL

TIG160P/TIG200P/TIG250P/TIG300P

A0

PREFACE

Dear Users:

Thank you very much for our products.

TIG-P series is the inversion DC pulse TIG/MMA welding machine manufactured with the advanced inversion technology.The working principle is to adopt the pulse width modulation (PWM) and high power switch component MOSFET to rectify 50Hz/60Hz power frequency to direct current, invert the current into high frequency up to 100KHz and then reduce the voltage for rectification. The PWM output can support high power DC power supply for welding; due to the switch power inverting technology adopted, the weight and volume of the welding machine decrease greatly and the whole-set conversion rate increases by over 30%.

We recommend you read carefully and understand completely this manual before installation and operation in order to protect the safety of you and others.

TROUBLES	SOLUTIONS
The fault indicator off, no HF discharge rustling, and arc striking effective	• The arc striking transformer primary cable has a poor touch with the power plate. Re-tighten it. • The discharging nozzle is oxidized or is too far. Remove the oxidized membrane on the surface of the discharging nozzle or adjust its distance to be about 1mm. • The manual welding argon welding switch is broken. Replace it. • Some components of the HF arc striking circuit is damaged. Find and replace them.
Large splash of ARC and very hard in the burning of the alkali welding rod	• Wrong polarity, exchange the polarity of the earth wire and the handle wire.
The fault indicator on and no output	• Maybe the over-current protection is activated. Please switch off the device and then restart it after the fault indicator is off. • Maybe the over-heat protection is activated. Do not switch off the device but wait 2-3min, then the device may naturally restore normal (the device of pure argon arc welding does not have over-heat protection function). • Maybe the inverter circuit is defective. Please plug out the power supply plug of the main transformer on the MOS plate to restart the device. 1) If the fault indicator is still on, switch off the device and plug out the power supply plug of the HF arc striking power supply. a. If the fault indicator is still on, it will indicate that some field-effect tubes on the MOS plate are broken. Find and replace them with the ones of the same type. b. If the fault indicator is off, it will indicate that the voltage rise transformer in the HF arc striking circuit on the power supply plate is broken. Replace it. 2) If the fault indicator is off: a. Maybe the medium plate transformer is broken. Use an electric bridge to measure the primary inductance and Q value of the main transformer which should be L=0.4-0.7Mh. b. Maybe some the secondary rectifying tubes of the transformer are punctured. Find and replace with the ones of the same type.

6-2 SOLUTIONS AFTER REASONS FOUND

■ When this device fails or other peripheral components have defects, please contact the local dealer for maintenance.

VI TROUBLES AND TROUBLESHOOTING

6-1 TROUBLES AND TROUBLESHOOTING

⚠ WARNING	⚡	Any live electrical parts touched may cause fatal electric shock or serious burns. In order to prevent such personal accidents as electric shock and burn, be sure to follow the instructions below:
• Troubleshooting must be completed by personnel with professional competency or competent personnel. • Before operation, be sure to turn off the power supplies of this product, distribution box (user's equipment), related devices (external devices connected with the input terminal); and due to the discharge of the capacitor, be sure not to operate until the welding power supply is turned off for at least 5min.		

■ Check Items in case of Welding Accidents

TROUBLES	SOLUTIONS
The power indicator off, the fan not working and no welding output	• The power switch is broken. • Check if the power gird the input cable is connected to is live. • The power plate is faulty and no voltage output at DC310V. a. Open circuit of silicon bridge or poor patch cord touch. b. Burnt places occur on the power plate. c. Check if the patch cords from the switch to the power plate and from the power plate to the inverter plate are touched properly. D. The thermistor of the power plate is damaged (generally caused by the un-closing of the DV24V relay). • The auxiliary power on the control panel is faulty.
The fan working, the fault indicator off, no HF discharge rustling, and arc striking ineffective	• Check if all plug-in cables inside the device are in good contact. • Maybe control circuit problem. Check the reason or contact the distributor. • The control line on the welding gun is broken.
The fault indicator off, HF discharge rustling, no welding output	• The welding gun cable is broken. • The earth cable is broken or is not connected to the welded workpiece. • The positive output terminal or the welding gun pneumoelectric output terminal is loose from the connection point inside the device.

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WELDERS.USERS'MANUAL.TIG SERIAL

I. BEFORE USE

1-1 SAFETY NOTICES

- Before use, please read carefully this manual for your proper use.
- he notices listed in this manual aim at ensuring the safe use of the deviceand protection measured taken during welding so as to prevent you and others from being armed and injured.
- When this welding machine is designed and made, the safety has been fully considered;be sure to conform to the notices herein during use; otherwise, major personal accidents such as death or heavy injury may occur.

ALARM SIGN	SIGNAL WORDS
	EXTREME DANGER
	DANGER
	CAUTION

For the welding machine use, adopt the signs shown below to indicate Dos and Don'ts:

	COMPULSORY	MUST DO, SUCH AS GROUND
	FORBIDDEN	MUST NOT DO

The above signs are used in general conditions.

1-2 THE FOLLOWING SAFETY NOTICES SHOULD BE OBSERVED:

DANGER

In order to avoid major accidents, be sure to obey the following rules:

1. Never use the welding machine for the operation rather than welding.
2. When this welding machine is designed and made, the safety has been fully considered; be sure to pay attention to the notices herein during use; otherwise, major personal accidents such as death or heavy injury may occur.

WARNING	In order to prevent the semiconductor and P plate from being damaged by static, please follow the instructions below:
• Before touching the conductor of the cables and P plate inside the device, you may remove the static in advance via touching the housing metal position with your hand, etc	

- In order to maintain the performance of this product for a long time, the regular check is required.
- Be sure to conduct the regular check very carefully, including the inspection and cleaning of the product inside.
- The regular check should be generally conducted once every 6 months. (However, if much fine dirt exists in the welding place, or much oily smoke and fume exists there, the regular check should be conducted once every 3 months).

You may make the label and fill in the date for the regular check.

(3-6 months) conduct an internal check for the welding power supply. For details, please refer to the user manual.

	1	2	3
Regular check Period	/ /	/ /	/ /
	4	5	6
Year/Month/Day	/ /	/ /	/ /

CAUTION	If the welding machine has just been turned off, you cannot conduct an Internal overhaul to it but you should do so at least 5min after the power distribution box switch or power switch is disconnected so that the capacitor inside the welding machine can have a complete discharge.

■ Check contents

In addition to the check items below, the user may add more check items according to his/her actual situation.

· Remove dust inside

Remove the cover, remove the dirt or foreign matters hard to be blown away. Use the compressed air without water contained (dry air) to blow the accumulated dust inside away.

- Routine Check

Remove the cover and be sure to pay attention to the check on the following items and non-routine items.
Check if there is rare odor, fading or overheat damage traces and the connection points are loose.

- Cable Check

Please mainly check such non-routine check items (supplementary fastening, etc) as the earth wire, cables, etc.

5-1-1 WELDING POWER SUPPLY

ITEMS	CHECK POINTS	RMKS
Front panel	·Check if every component is damaged or loose. ·Check if the lower quick socket is loose.	The lower quick socket is as regular check item. If defect occurs, it is necessary to check the inside, fasten the parts or replace the components where necessary.
Rear panel	·Check if the air intake of the cooling fan has foreign objects sticking to.	
Routine	·Power on, and then check if the appearance has fading or too hot traces. ·Check if the cooling fan has stable operation sound. ·Check if the cooling fan takes in air from the air intake, if odor, abnormal vibration or noise (especially during welding) occurs	In case of defects, it is necessary to check the inside of the device.
Top plate Bottom plateSide panel	·When the machine cover is installed onto the housing, check if it is loose. ·Check if bolts are loose.	In case of defects, it is necessary to replace or fasten components, etc as required.

5-1-2 CABLES

ITEMS	CHECK POINTS	RMKS
Grounding cable	• Check if every earth wire (for this device and parent metal grounding) falls off; and check if the connections are safe and reliable.	In order to avoid personal electric shock accidents, be sure to conduct related checks.
Cable	• Check if the cable insulation layer is worn and has other damages, if the conductive components are exposed. • Check if the cable suffers abnormal exterior force • Check if the connection of the cable connecting with the parent metal is reliable and firm.	In order to ensure the arc safety and stability, be sure to adopt proper methods to conduct the check according to the condition of the operation site; daily check should be simple while regular check should be careful.

5-2 REGULAR CHECK

WARNING		Any live electrical parts touched may cause fatal electric shock or serious burns. In order to prevent such personal accidents as electric shock and burn, be sure to follow the instructions below:
·In order to ensure safety, the regular check must be completed by personnel with professional competency or competent personnel. ·Before check, be sure to turn off the power supplies of this product, distribution box (user's equipment), related devices (external devices connected with the input terminal); and due to the discharge of the capacitor, be sure not to operate until the welding power supply is turned off for at least 5min.		

3. With regard to the construction of the power source at input side, the selection of the installation place, the use, the keeping and configuration of high-pressure gas, the keeping of workpieces and the waste disposal after welding, etc, be sure to conform to related regulations and the internal standards of the company.
4. Never enter the welding operation place for unrelated personnel.
5. For people using the heart pacemaker, never be close to the welding machine during stay around the welding operation place without the doctor's permission.
6. Ask personnel with professional qualifications or professionals to install, overhaul and mainta in the welding machine.
7. In order to ensure safety, please properly understand the contents in this manual and ask personnel with safe application knowledge and techniques to operate the welding machine.

DANGER To avoid electric shock, be sure to follow the instructions below.

The touch with the live positions out of the secondary electrode may cause electric shock or burning.

1. Never touch live parts.
2. Ask related electrical personnel to earth the welder and parent material as per related regulations.
3. During installation and servicing, the power supply of the distribution box must be first turned off and the operation can be conducted in 5 minutes. Because the capacitor is rechargeable, even if the power is shut off, never work before your make sure the capacitor is not charging.
4 . Never use the cable without enough capacity and with insulation sleeve damaged to cause the conductor to be exposed.
5. Ensure the insulation of the cable connection.
6. Never use the welder with the housing removed.
7. Use dry insulation gloves.
8. Use safety grille during work at height.
9. Conduct regular maintenance and servicing; do not use it until damaged part is repaired.
10. When it is not in use, turn off all input power supplies.
11. Use the anti-electrical shock function when using the AC arc welder in narrow places or at height.

DANGER In order to prevent welding fume and gas harming you and others, always use protective tools.

✷ Welding fume and gas may harm health.
✷ In narrow place, welding may cause suffocation due to oxygen shortage.

1. In order to prevent gas poisoning, suffocation, etc, please use only the specified facilities and breath protective tools.

2. In order to prevent dust harm and poison such as welding smoke, etc, be sue to use the specified local exhaust equipment and breath protective devices.
3. In case of welding on the bottom of cases, boilers, vessels, etc, as such gases heavier than air as CO2, Air, etc will settle on the bottom, therefore, make sure sufficient gas exchange and breath protective tools are available.
4. When working in the narrow place, please accept the check of the supervisor, make sure sufficient air exchange is available and prepare the breath protective devices.
5. Do not conduct welding in degreasing, cleaning and spraying areas.
6. When welding the steel plate with plating or coating, harmful fume and gases may occur, so always use breath protective tools.

DANGER In order to prevent fire, explosion, burst, etc, be sure to follow the following regulations:

- ✴ Splashes and hot parent materials having just been welded may cause fire.
- ✴ When the point with bad cabling, the side current loop of such parent materials as steel bar, etc have incomplete touch, electric heating may occur and thus cause fire.
- ✴ Do not weld on the container with flammables, otherwise, explosion may occur.
- ✴ Do not weld the sealed container, such as trough (case), tube, etc, otherwise, burst may occur.

1. Do not place flammables in the welding place.
2. Do not weld near flammable gases.
3. Do not keep the hot parent material having just been welded near flammables
4. When welding parvis, ground or wall, remove the flammables on the back.
5. Make sure the cable connection point is well insulated.
6. The cable on the parent material shall close to the welding point as possible.
7. Do not weld such units as gas pipe, sealed trough, etc with gases.
8. Always place some extinguishers near the welding area to prevent fire.

CAUTION In order to prevent welding arc, splash, welding slag, noise, etc from harming you and others, please use the specified protective tools.

- ✴ Arc may cause eye inflammation or skin burning, etc
- ✴ Splash and welding slag can burn your eyes and your skin.
- ✴ Noise may affect listening.

1. When welding or monitoring the welding, please use protectors with enough opacity.
2. Please wear protective glasses.
3. Please use welding protectors welding such as leather protective gloves, long-sleeve clothes, foot protectors and aprons.
4. Install protective barriers around the welding place in order to prevent arc from harming others.
5. In case of large noise, be sure to use sound-insulated devices.

■ DC TIG Welding

- Connect the welding machine to the input power supply and power the welding machine on. In such case, power on the machine and let it have a self-check; and the screen will display: Full display->HYL->Model such as 200-> Enter the previous welding status.
- Press the TIG/MMA function selector switch, then the DC TIG indicator will be on and the welding machine will change into the DC TIG status.
- Press the parameter setup selector key to set welding parameters such as foreblow time, arc striking current, rise time, given current, fall time, arc stopping current, afterblow time, etc; with the regulation knob ②, you may respectively adjust the above parameters. For details, see Section 2-7 Welding Condition Table.
- Press the 2T/4T selector key to choose 2T or 4T.
- After regulating the welding current, save such welding parameter as unit n; for the next use, you may directly call the parameters in the storage unit n.
- Please note the rated welding current and duty cycle; DO NOT use the welding machine under overload.
- After the welding is over, turn off the power switch and then disconnect the input power.

■ Pulse TIG Welding

- Connect the welding machine to the input power supply and power the welding machine on. In such case, power on the machine and let it have a self-check; and the screen will display: Full display->HYL->Model such as 200-> Enter the previous welding status.
- Press the TIG/MMA function selector switch, then the pulse TIG indicator will be on and the welding machine will change into the pulse TIG status.
- Press the parameter setup selector key to set welding parameters such as foreblow time, arc striking current, rise time, given current, fall time, arc stopping current, afterblow time, etc; with the regulation knob ②, you may respectively adjust the above parameters. For details, see Section 2-7 Welding Condition Table.
- Press the 2T/4T selector key to choose 2T or 4T.
- In welding, you may adjust the welding parameters. The 2T/4T and the welding mode cannot be switched.
- After regulating the welding current, save such welding parameter as unit n; for the next use, you may directly call the parameters in the storage unit n.
- After the welding is over, turn off the power switch and then disconnect the input power.
- Wrong code indicator : Over-heating : OH ,Over-current : OC

V CHECK

5-1 DAILY CHECK

WARNING		Any live electrical parts touched may cause fatal electric shock or serious burns. In order to prevent such personal accidents as electric shock and burn, be sure to follow the instructions below:
During daily check, be sure to turn off the power supplies of this product and istribution box (user's equipment). (except the appearance check not requiring touching or approaching live parts.)		

- It is crucial to conduct daily check for high-performance use and safe operation of the machine.
- Conduct the inspection according to the check items shown in the following table; when necessary, clean or replace such items.

■ After connection is over, check if the following connections are completed.
Parent metal: Earth wire
Welding machine: Grounding terminal earth

■ Power on
Turn the switch of the power distribution box on and then turn on the switch of this device

4-1-2 WORK AFTER OPERATION

■ Power off
Firstly power off this device and then the power distribution box.

⚠CAUTION	In order to make this product fully cool down, be sure to disconnect the power supply after over 5min when the welding operation is finished.

4-2 OPERATION PROCESS

4-2-1 METHOD TO STORE AND CALL PARAMETERS

■ Parameter Storage

- Press the parameter storage function key [SAVE key] to enter the storage status, then the screen will display SA..n;
- With the regulation knob ②, select the storage unit n whose scope is 0-9.
- Press the parameter storage function key again; when the welding parameters are to be saved into the target storage unit n, then the screen will display to.n.; after flashing 3s, n will return to the status before storage.

■ Parameter Call

- Press the parameter call function key [PROG key] to enter the call status, then the screen will display rd..n;
- With the regulation knob ②, select the saved unit n
- Press the parameter call function key again, then the welding parameters of the storage unit n will be read and cover the current status, and the screen will display Fr.n; after flashing 3s, n will return to the storage status. .
- In the process of stored parameter call, if failing to press the key to confirm, press any other key or trigger the gun to give up such operation and back to the welding status.

4-2-2 WELDING

■ MMA Welding

- Connect the welding machine to the input power supply and power the welding machine on. In such case, power on the machine and let it have a self-check; and the screen will display: Full display->HYL->Model such as 200-> Enter the previous welding status.
- Press the TIG/MMA function selector switch, then the MMA indicator will be on and the welding machine will change into the MMA status.
- With the regulation knob ?, select a proper welding current. The experimental expression for welding current selection is I=40D, where, D is the diameter of the used welding rod in mm.
- After regulating the welding current, save such welding parameter as unit n; for the next use, you may directly call the parameters in the storage unit n.
- Please note the rated welding current and duty cycle; Do not use the welding machine under overload.
- After the welding is over, turn off the power switch and then disconnect the input power.

1-3 HANDLING, INSTALLATION PLACE

1-3-1 HANDLING

⚠CAUTION	Keep flat during transport; properly protect the welding machine to prevent scratches, bruises, etc.

1-3-2 INSTALLATION PLACE

Place the welding machine in the rainproof room with no direct sunshine, low humidity and little dust (room temperature 10℃~40℃).	Any conductive foreign object can not enter the welding power supply.
Keep the welding power supply over 20cm away from the wall.Two welding machines should be over 30cm apart when placed in parallel.	Conduct the welding at the place without wind (use the wind shield, etc).

⚠CAUTION	This product should be used indoor; it's recommended not to use it in the place which may suffer from rain
In case this product is soaked with rain, rain drops may fall into the power supply inside; at this time, a serious accident may occur. Therefore, ask professional personnel to conduct related check and maintenance.	

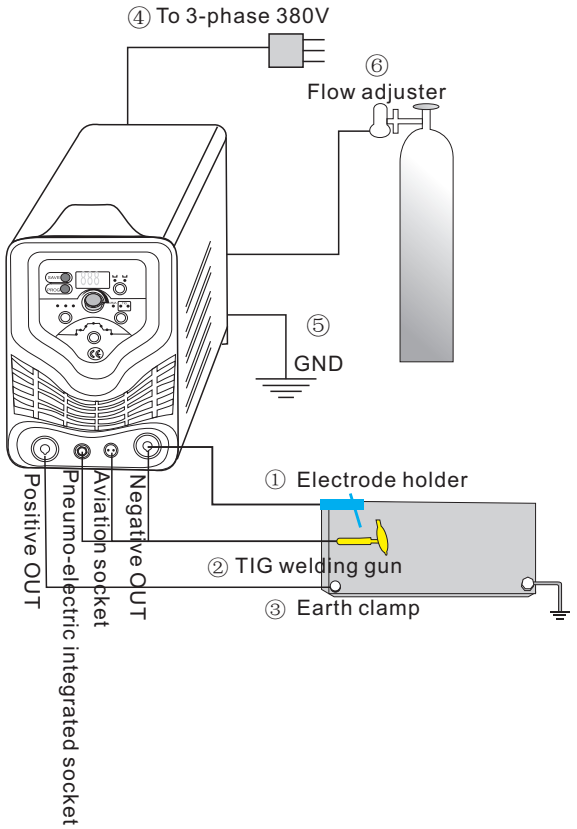
1-4 DEVICE PARTS

1-4-1 APPARATUSES NECESSARY FOR WELDING CONSTRUCTION (TIG250P)

No.	Standard products needed	RMKS
①	Electrode holder	300A
②	Argon arc welding gun	WP-26
③	Earth clamp	300A

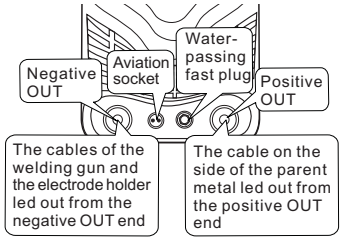
No.	Standard products needed	RMKS
④	Distribution box	Three-phase 380V
⑤	Earth cable	25mm 2
⑥	Flow adjuster	——

NOTICE	The connection diagram of the welder is shown below. Be sure to use this welding machine with the specified welding gun, earth clamp together; otherwise, it will affect the welding performance and may damage the machine.



3-1-2 CONNECTION OF OUTPUT SIDE

TIG160P/200P


Negative OUT
Aviation socket
Water-passing fast plug
Positive OUT
The cables of the welding gun and the electrode holder led out from the negative OUT end
The cable on the side of the parent metal led out from the positive OUT end

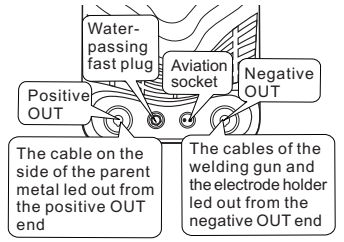
Connection of parent metal cable
- Please use the attached connector to connect the parent metal cable to the positive OUT end.

Connection of the cable on the side of the electrode holder
- Please use the attached connector to connect the electrode holder cable to the negative OUT socket.

Connection of the aviation socket side
- Please use the attached plug to connect the cable of the manual switch to the aviation socket.

Connection of water-passing fast plug
- Please use the attached plug to connect the air connector of the welding gun to the water- passing fast plug.

TIG250P/300P


Water-passing fast plug
Aviation socket
Negative OUT
Positive OUT
The cable on the side of the parent metal led out from the positive OUT end
The cables of the welding gun and the electrode holder led out from the negative OUT end

IV. USE INSTRUCTIONS

4-1 OPERATION BEFORE AND AFTER WELDING

4-1-1 PREPARATION BEFORE OPERATION

DANGER		During operation, be sure to use protective devices or air exhaust system to protect you and others from being damaged due to the welding fume and ensure sufficient oxygen supply.

- If the welding operation is conducted in small and badly ventilating area, it may lead to the oxygen deficiency and even make people suffocated.
- The fume intake during welding is very harmful to the human body; be sure to provide fume exhaust and air exchange methods or use the respiratory protective device.

WARNING		During operation, be sure to use protective devices to protect you and others from being damaged by the arc, splash, noise, etc caused by welding.	

- Wear the special protective clothes, such as gloves, safety boots, etc to protect eyes and the exposed skin.
- Please prepare shades or use protective masks with shadow shield.

III. CONNECTION

3-1 CONNECTION

DANGER		Any live parts touched may cause electric shock accidents. In order to prevent such accidents, be sure to follow the instructions below:

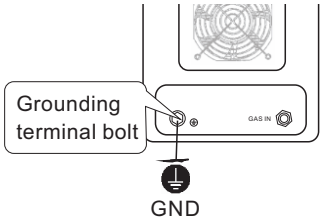
- The control panel shall be operated by the personnel who have qualifications or know the circuit of this welding machine.
- Before operation, the operator must disconnect the power switch of this welding machine, the switch of the power distribution box supplying electricity to this welding machine, the distribution switch of other electric appliances which have the wiring relation (external terminal, etc) with this welding machine. The operation can not be conducted until the capacitance of this welding machine is discharged for 5min.

3-1-1 CONNECTION OF INPUT SIDE

Connection of earth wire

CAUTION	As the tap water pipe and reinforced bars for houses have no full grounding, never connect the earth wire to such places.

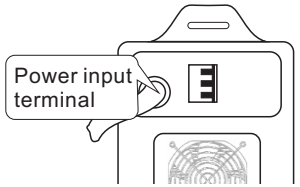
- Connect one end of the earth wire to the rear grounding terminal
- Reliably ground the other end of the earth wire Connect the air faucet with the air pipe reliably.



Connection of input power supply

DANGER	Please configure one power distribution box for every welding machine.

- Connect the cable on the input side to the output terminal of the switch of the power distribution box.



1-4-2 CABLE CONNECTION

CAUTION	Waterproof measures

When this welding machine is used under the circumstance with water, be sure to adopt waterproof measures in the cable connection position. (If water enters the connection position, the insulation resistance may decrease or even the short circuit may occur between connecting lines, thus causing failures.

Be sure to pay attention to the following when connecting cables:

- The length and wire diameter (sectional area) should be selected properly; otherwise, the welding performance will decrease due to the voltage drop on the cable.

■ Therefore, when connecting the extended cable, please note the following:

- The relation between the cable extension and sectional area.
- Shorten the connection cable length as possible.
- When the cable is extended for use, the curling of the cable will be adverse to the welding performance.
- Try to use single cable and not to lengthen it in the middle.

1-5 NAMES AND FUNCTION OF VARIOUS PARTS

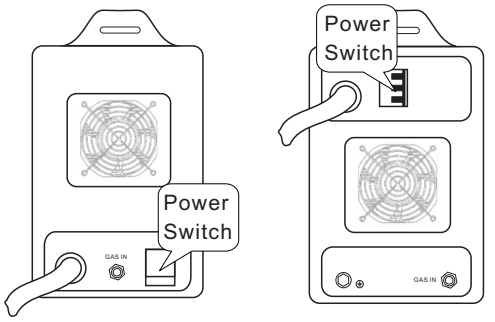
1-5-1 POWER SWITCH（BREAKER）

CAUTION	About Power Supply

Under the circumstance that the electric generator is used, be sure to disconnect the power supply when starting the generator.

Connection and disconnection operation of the power switch

- Power-on state when the power switch is at ON point.
- Power-off state when the power switch is at OFF point.

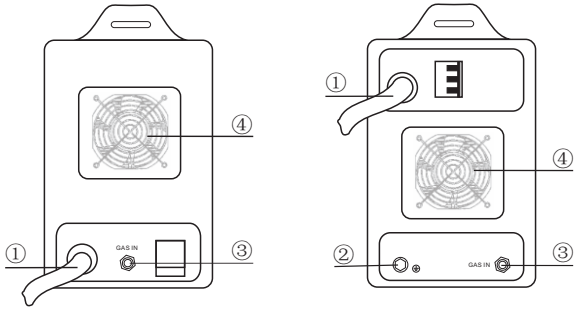


1-5-2 FRONT WIRING PART

TIG160P/200P TIG250P/300P

①	Terminal to electrode holder/TIG welding gun • Reliably connects with the electrode holder/TIG welding gun
②	Aviation socket • Connects with the cable of the control switch of the welding gun
③	Water-passing fast plug • Reliably connects with the connector of the TIG welding gun
④	Terminal to parent metal • Reliably connects with the cable of the parent metal.

1-5-3 REAR PANEL



①	Power input terminal • When the power incoming wire is connected, in order to prevent it from being loosened, be sure to have reliable connection.
②	Grounding terminal • Please use a reliable grounding method.
③	Air faucet • Please keep inside smooth.
④	Fan • Never put any wind-shielding object nearby

2-7 WORKING PARAMETERS OF WELDER

Below is the parameter selection table of manual tungsten electrode/argon welding of thin stainless steel sheets (for reference only)

Sheet thickness (mm)	Connector form	Tungsten electrode diameter(mm)	Welding wire dia meter(mm)	Current category	Welding current (A)	Argon flow (L/min)	Welding speed (cm/min)
1.0	Butt joint	2	1.6	DC straight connection	7～28	3～4	12～47
1.2		2	1.6		15	3～4	25
1.5		2	1.6		5～19	3～4	8～32

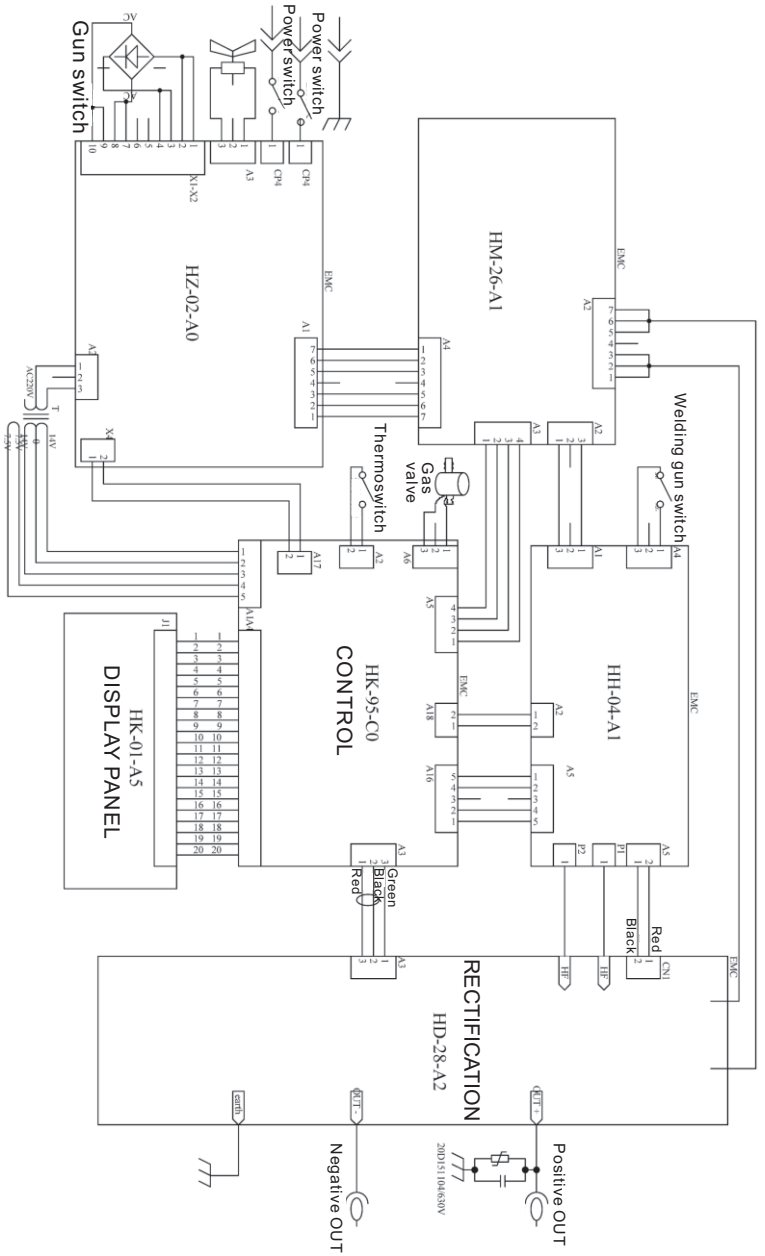
Below is the parameter selection table of manual tungsten electrode/argon welding of titanium and its alloy (for reference only)

Sheet thickness（mm）	Groove form	Number of welding layers	Tungsten electrode diameter	Welding diameter	Welding current	Argon flow (L/min)			Nozzle aperture
0.5	I-shaped	1	1.5	1.0	30～50	8～10	6～8	14～16	10
1.0		1	2.0	1.0～2.0	40～60	8～10	6～8	14～16	10
1.5		1	2.0	1.0～2.0	60～80	10～12	8～10	14～16	10～12
2.0		1	2.0～3.0	1.0～2.0	80～110	12～14	10～12	16～20	12～14
2.5		1	2.0～3.0	2.0	110～120	12～14	10～12	16～20	12～14
3.0	Y-shaped	1～2	3.0	2.0～3.0	120～140	12～14	10～12	16～20	14～18
4.0		2	3.0～4.0	2.0～3.0	130～150	14～16	12～14	20～25	18～20
5.0		2～3	4.0	3.0	130～150	14～16	12～14	20～25	18～20
6.0		2～3	4.0	3.0～4.0	140～180	14～16	12～14	25～28	18～20
7.0		2～3	4.0	3.0～4.0	140～180	14～16	12～14	25～28	20～22
8.0		3～4	4.0	3.0～4.0	140～180	14～16	12～14	25～28	20～22
10	Double Y-shaped	4～6	4.0	3.0～4.0	160～200	14～16	12～14	25～28	20～22
20		12	4.0	4.0	200～240	12～14	10～12	20	18
22		12	4.0	4.0～5.0	230～250	15～18	18～20	18～20	20
25		15～16	4.0	3.0～4.0	200～220	16～18	20～26	26～30	22
30		17～18	4.0	3.0～4.0	200～220	16～18	20～26	26～30	22

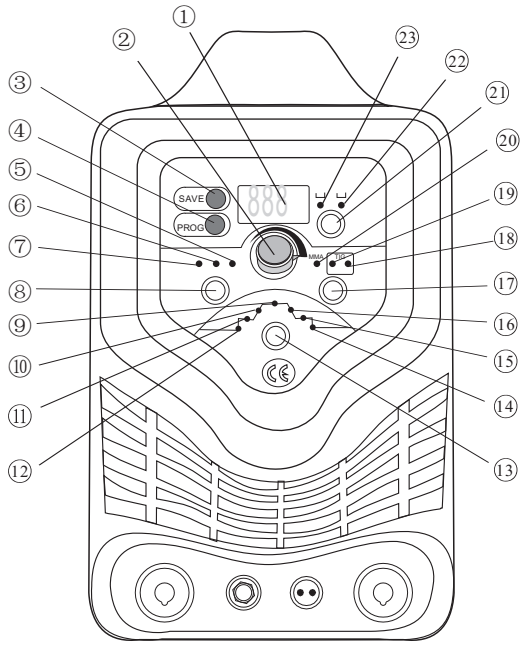
Below is the parameter selection table of manual tungsten electrode/argon welding of stainless steel

Sheet thickness (mm)	Current(A)		Duration (S)		Pulse frequency	Welding speed
	Pulse	Basic value	Pulse	Basic value	(HZ)	(cm/min)
0.3	20～22	5～8	0.06～0.08	0.06	8	50～ 60
0.5	55～60	10	0.08	0.06	7	55～ 60
0.8	85	10	0.12	0.08	5	80～100

2-6 CIRCUIT DIAGRAM



1-5-4 OPERATION PANEL



NO.	NAME AND FUNCTION	NO.	NAME AND FUNCTION	NO.	NAME AND FUNCTION
①	LED digital tube	②	Parameter regulation knob	③	Parameter storage key
④	Parameter call key	⑤	Pulse frequency regulation indicator	⑥	Duty cycle regulation indicator
⑦	Base value current regulation indicator	⑧	Pulse parameter regulation selector key	⑨	Given current regulation indicator
⑩	Rise time regulation indicator	⑪	Arc striking current regulation indicator	⑫	Foreblow time regulation indicator
⑬	Welding parameter setup switching key	⑭	Afterblow time regulation indicator	⑮	Arc stopping current regulation indicator
⑯	Fall time regulation indicator	⑰	TIG/MMA selector switch	⑱	DC TIG welding indicator
⑲	Pulse TIG welding indicator	⑳	MMA welding indicator	㉑	2T/4T selector switch
㉒	4T status indicator	㉓	2T status indicator		

II. TECHNICAL DATA

2-1 TECHNICAL PARAMETERS

Parameters \ Model	TIG160P		TIG200P		TIG250P		TIG300P		TIG250P		TIG300P	
Power voltage (V)	Single- phase 220V±15% 50/60HZ				220V±10% 50/60HZ				Three- phase 380V±10% 50/60HZ			
	TIG	MMA	TIG	MMA	TIG	MMA	TIG	MMA	TIG	MMA	TIG	MMA
Rated input power capacity (KVA)	3.3	4.5	4.5	6.2	6.3	8.5	8.3	9.5	6.3	8.5	8.3	9.5
No-load voltage (V)	56	56	56	56	54V	54V	54V	54V	54V	54V	54V	54V
Output current scope (A)	10-160	10-140	10-200	10-180	10-250	10-230	10-300	10-250	10-250	10-230	10-300	10-250
Output voltage scope (V)	10-16.4	20-25.6	10-18	20-27.2	10-20	20-29.2	10-22	20-30	10-20	20-29.2	10-22	20-30
Load duration rate (%)	60		60		60		60		60		60	
No-load loss (w)	40		40		60		60		60		60	
ARC-starting	HF		HF		HF		HF		HF		HF	
Power factor (cosö)	0.93		0.93		0.93		0.93		0.93		0.93	
Efficiency%	85		85		85		85		85		85	
Current rise/fall time (s)	0-9.9		0-9.9		0-9.9		0-9.9		0-9.9		0-9.9	
Foreblow time (s)	0.1-2.0		0.1-2.0		0.1-2.0		0.1-2.0		0.1-2.0		0.1-2.0	
Afterblow time (s)	0-9.9		0-9.9		0-9.9		0-9.9		0-9.9		0-9.9	
Pulse duty cycle (%)	5-90		5-90		5-90		5-90		5-90		5-90	
Pulse frequency (Hz)	1-200		1-200		1-200		1-200		1-200		1-200	
Housing protection class	IP21S		IP21S		IP21S		IP21S		IP21S		IP21S	
Insulation class	F		F		F		F		F		F	
Total weight (Kg)	12		12.5		18.5		19		18.5		19	
External dimensions (mm)	480*160*320		480*160*320		610*220*390		610*220*390		610*220*390		610*220*390	

2-4 PRODUCT BREAKDOWN (TIG250P)

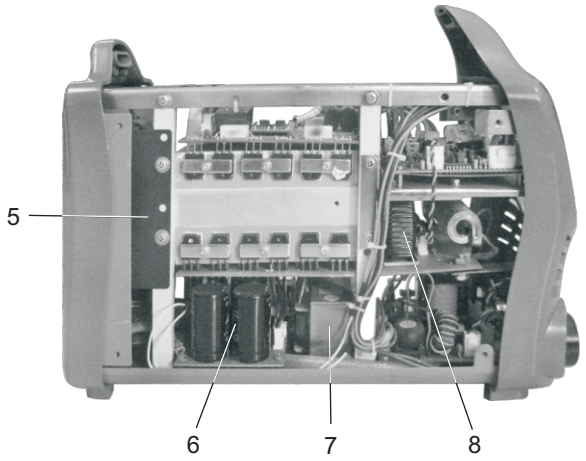
SN	NAME	RMKS
1	Fast socket	Connects with the workpiece.
2	Self-locking wire buckle	Fix the input cable
3	Drive control panel	Core control circuit, PWM adjustment and MOSFET drive control available
4	Control plate	Controls functions.
5	Air switch	Powers on/off the welding machine.
6	Radiator	Lowers the temperature of the FET.
7	Silicon bridge	Rectifies AC380V into DC540V
8	Reactor	Output DC smoothing
9	Fast recovery diode	Used for secondary rectification output
10	Arc-striking coil	Induces high-frequency voltage and penetrates air arc striking
11	Arc striking plate	Controls HF
12	Bottom plate	Rectifies and filters.

2-5 PRODUCT BREAKDOWN (TIG200P)

SN	NAME	RMKS
1	Fast socket	Connects with the workpiece.
2	Self-locking wire buckle	Fix the input cable
3	Drive control panel	Core control circuit, PWM adjustment and MOSFET drive control available
4	Control plate	Controls functions.
5	Fan	Used to cool heating parts inside
6	Bottom plate	Rectifies and filters.
7	Power frequency transformer	Provides power for the main control plate.
8	Reactor	Output DC smoothing
9	Arc-striking coil	Induces high-frequency voltage and penetrates air arc striking
10	Arc striking plate	Controls HF
11	Radiator	Lowers the temperature of the FET.

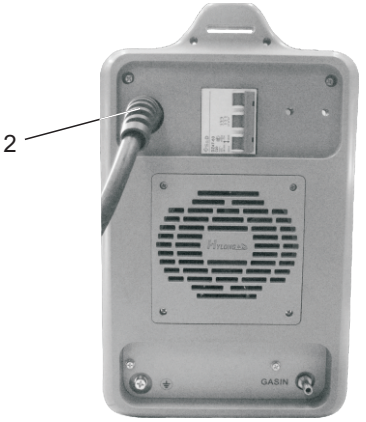
2-2 PRODUCT CONFIGURATION DIAGRAM (TIG250P)

Left View

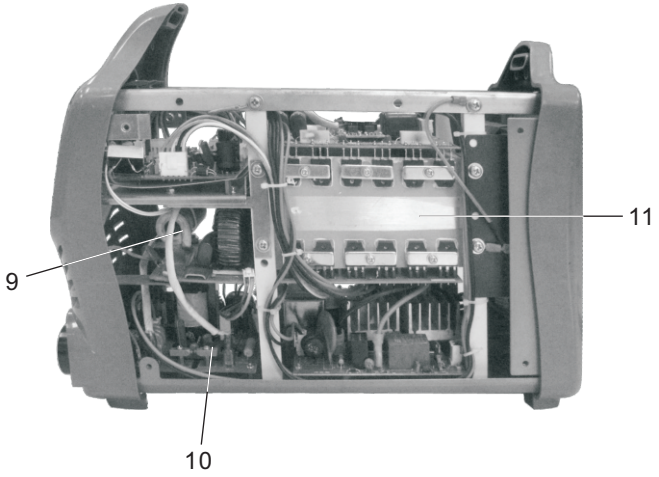


Front View

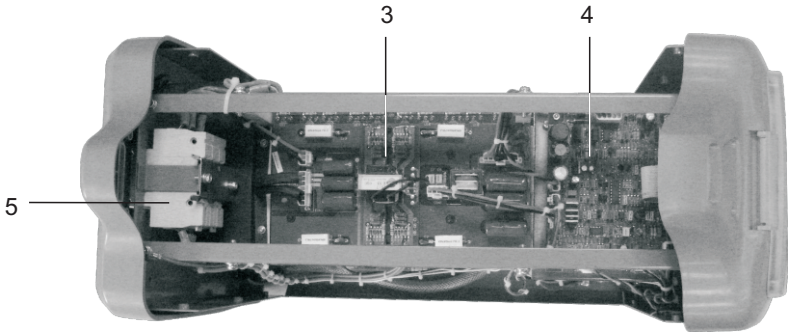
Back View



Right View

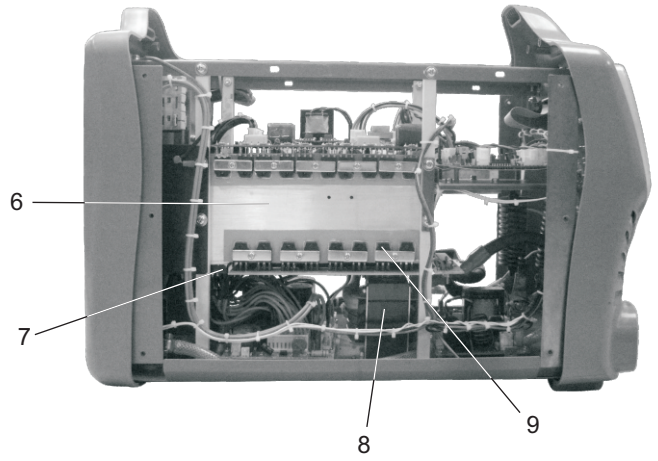


Top View



2-3 PRODUCT CONFIGURATION DIAGRAM (TIG200P)

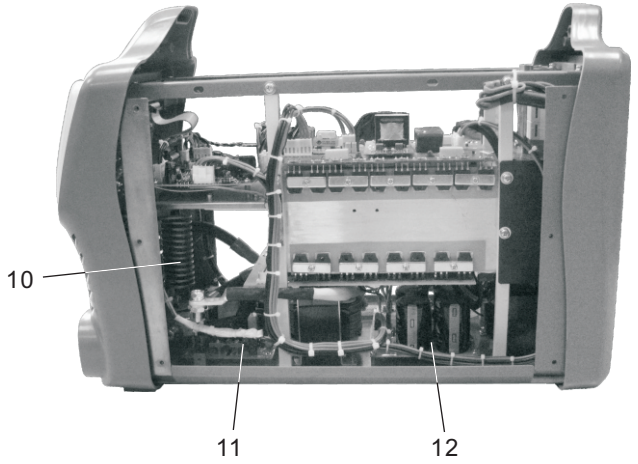
Left View



Front View

Back View

Right View



Top View